

ANTERIOR SEGMENT SPECTRAL DOMAIN (ASSD)-OCT IMAGE OF THE ARTEFICIAL INTRAOCULAR LENS (IOL)

J. Novak¹, V. Stoy², H. Adamkova¹, Z. Hlinomazova³, O. Zidek⁴

¹*Department of Ophthalmology, Regional Hospital Pardubice, Czech Republic*

²*Department of Research, Medicem, Czech Republic*

³*Department of Ophthalmology, Lexum, Czech Republic*

⁴*Department of Scanning Electron Microscopy, Contipro, Czech Republic*

Purpose: We have tried to display the scattering light effect of the opaque IOL material by the ASSD-OCT in vitro and in vivo. **Methods:** Hydrophilic and hydrophobic acrylic IOLs were studied in vitro in different temperature. 10 clear IOLs, 1 opaque hydrophilic and 10 opaque hydrophobic IOLs were scanned using ASSD-OCT in vivo. 1 calcified hydrophilic (Ioflex-Mediphacos) and one opaque hydrophobic IOL (AcryNova-Medennium) were examined in vitro after explantation. **Results:** Using ASSD-OCT Avanti™ RT-Vue®XR100-2 (Optovue, Inc, Fremont, CA) the whole single IOLs can be displayed on the screen in vitro in the air. There was no scattering effect in the material of hydrophilic and hydrophobic IOLs in temperature of 20 °C. After thermal shocks (-10°C or +100°C in dry and wet conditions the increase of opacification was confirmed by OCT. Using ASSD-OCT only anterior and posterior surfaces were displayed in clear IOLs in vivo. In the opaque IOLs (opacification was confirmed by Pentacam in vivo) the superficial (in Acrysof-Alcon IOLs) or homogenous (in AcryNova-Medennium IOLs) scattering light effects of IOL material were displayed. Superficial opacity was displayed in vitro in one calcified IOL. Homogenous opacity was displayed using OCT in vitro in the opaque hydrophobic IOL after explantation. **Conclusion:** Standardized clinical ASSD-OCT is acceptable to discover the scattering light effects of IOL material. It can be used both in vitro and in vivo for detection and semiquantitative measurements of IOL opacification.